UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,208	03/30/2004	Anthony Aue	M61.12-0630	5138

27366 7590 12/23/2008

WESTMAN CHAMPLIN (MICROSOFT CORPORATION)
SUITE 1400
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402-3244

EXAMINER	
GODBOLD, DOUGLAS	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
12/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/813,208	AUE ET AL.
	Examiner	Art Unit
	DOUGLAS C. GODBOLD	2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-16 and 18-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-16 and 18-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20080905*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to correspondence filed October 7, 2008 in reference to application 10/813,208. Claims 1, 3-16, and 18-40 are pending and have been examined.

Information Disclosure Statement

2. The Information Disclosure Statement filed September 5, 2008 has been accepted and considered in this office action.

Response to Arguments

3. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

4. Applicant's arguments with respect to claims 1, 7, 8, 16, 18-23, 39 and 40 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments filed October 7, 2008 with respect to claims 3-6 9-15 and 24-29 have been fully considered but they are not persuasive. Although the examiner agrees that the cited portions of BROWN did not clearly teach some of the limitations in question, the examiner believes that BROWN still teaches the limitations in different portions as laid out bellow.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-40 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

7. Claim(s) 1-22 and 30-40 are rejected under 35 USC 101 as not falling within one of the four statutory categories of invention. While the claim(s) recite a series of steps or acts to be performed, a statutory "process" under 35 USC 101 must (1) be tied to another statutory category (such as a manufacture or a machine), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claim(s) neither transform underlying subject matter nor positively recite structure associated with another statutory category, and therefore do not define a statutory process.

8. Claims 23-29 are rejected under 35 USC 101 as not falling within one of the four statutory categories of invention. While the claims recite a system comprising components, in view of the specification the system and components can be interpreted as a computer program which is not considered statutory subject matter. Therefore claims 23-29 are rejected as being non-statutory subject matter.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1, 3-16, 23-29, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menezes et al. (US PAP 2003/0023422) in view of Brown et al. (US Patent 5,477,451).

11. Regarding claim 1, MENEZES teaches a method of decoding an input semantic structure to generate an output semantic structure, the method comprising:

providing a set of transfer mappings ("transfer mapping database 218", paragraph [0057]) that cover at least portions of the input semantic structure ("input logical form is generated based on the textual input", paragraph [0007]), each transfer mapping having an input semantic side that describes nodes of the input semantic structure and having an output semantic side that describes nodes of the output semantic structure ("composed of a pair of logical form fragments, including a source and target logical form", paragraph [0008]);

selecting which of the transfer mappings that describe the select node has a best fit ("the subset of matching transfer mappings is selected", paragraph [0121]); and

using the selected transfer mapping to construct the output semantic structure ("the transfer mappings in the subset are combined into a transfer logical form from which the output text is generated", paragraph [0121]).

MENEZES does not specifically teach:

calculating a score for each of the set of transfer mappings; and

selecting which of the transfer mappings that describe the select node has a highest score.

In the same field of language translation systems, BROWN teaches calculating a score for each of the set of transfer mappings (figure 7, scores are given to each transitional structure, column 10 lines 28-40); and

selecting which of the transfer mappings that describe the select node has a highest score (highest score is selected; column 10 line 37).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the scoring of models as disclosed by BROWN in the system of MENEZES in order to provide a logical method to select which translation model will be used for translating the particular input in question.

12. Regarding claim 3, BROWN teaches the method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a target language model that provides a probability of a set of nodes appearing in the output semantic structure (Figure 24, score of translation model is computed using probabilities of the output given the input [alignment] including lexical models, columns 39 line 8-62).

13. Regarding claim 4, BROWN teaches the method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a channel model that provides a probability of an input semantic side of a transfer mapping given the output semantic side of the transfer mapping (computing the probability of a source structure given the output structure; column 39 lines 14-17).

14. Regarding claim 5, MENEZES and BROWN further teach that calculating a score using the channel model (computing the probability of a source structure given the output structure; column 39 lines 14-17 BROWN) comprises normalizing a channel model score based on a number of overlapping nodes between transfer mappings ("of the ones that overlap, we can only use those that are 'compatible' with one another", MENEZES, paragraph [0136]. These must be considered when scoring in BROWN).

15. Regarding claim 6, BROWN further teach that calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a fertility model that provides a probability of node deletion in a transfer mapping (probability of alignment is computed in part by a fertility sub-model, column 39 lines 30-56).

16. Regarding claim 7, MENEZES and BROWN further teaches that calculating a score for each transfer mapping in the set of transfer mappings that describe a select

node of the input semantic structure comprises calculating a size score based on a number of nodes in the input semantic side of the transfer mapping (MENEZES see p. 9, Table 1, "size of transfer mapping matched." It is obvious that this would be considered when scores are computed in BROWN).

17. Regarding claim 8, MENEZES further teaches that calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating a rank score based on a number of matching binary features in the input semantic structure and the input semantic side of the transfer mapping (see p. 9, Table 1, "frequency with which the transfer mapping was generated from fully aligned logical forms").

18. Regarding claim 9, MENEZES and BROWN further teach that calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises:

computing separate scores for a plurality of models ("hypotheses are scored by two different models", BROWN, abstract); and

combining the separate scores to determine the score for each transfer mapping that describe a select node of the input semantic structure ("scores from the translation model and language model are combined into a combined score", BROWN, abstract).

19. Regarding claim 10, MENEZES and BROWN further teach that the plurality of models comprises a channel model that provides a probability of an input semantic side "of a transfer mapping given the output semantic side of the transfer mapping ("computing the probability of a source structure given the output structure; column 39 lines 14-17 BROWN).

20. Regarding claim 11, MENEZES and BROWN further teach that the plurality of models comprises a fertility model that provides a probability of node deletion in a transfer mapping (probability of alignment is computed in part by a fertility sub-model, column 39 lines 30-56 BROWN).

21. Regarding claim 12, MENEZES and BROWN further teach that the plurality of models comprises a target language model that provides a probability of a set of nodes appearing in the output semantic structure ("structure language model 204 which assigns a probability or score P(E') to any intermediate structure E'", BROWN, column 8, lines 48-50).

22. Regarding claim 13, MENEZES and BROWN further teach: computing a size score for each transfer mapping that describe a select node of the input semantic structure, the size score based on a number of nodes in the input semantic side of each transfer mapping (see MENEZES, p. 9, Table 1, "size of transfer mapping matched"); and

combining the size score with the separate scores for the plurality of models to determine the score for each transfer mapping that describe a select node of the input semantic structure ("additional information can be used to choose an appropriate set of mappings", MENEZES, paragraph [0119] This “additional information” could obviously be the scores in BROWN.).

23. Regarding claim 14, MENEZES and BROWN further teach: computing a rank score for each transfer mapping that describe a select node of the input semantic structure, the rank score based on a number of matching binary features in the input semantic structure and the input semantic side of each transfer mapping (BROWN figure 7, scores are given to each transitional structure, column 10 lines 28-40); and

combining the rank score with the separate scores for the plurality of models to determine the score for each transfer mapping that describe a select node of the input semantic structure ("additional information can be used to choose an appropriate set of mappings", MENEZES, paragraph [0119], for instance Table 1.)

24. Regarding claim 15, MENEZES and BROWN further teach that combining the separate scores comprises: multiplying each score by a weight to form weighted model scores (see BROWN, column 32, equation 7, each probability is weighted by LAMBDA which is a weight determined to maximize probability of some additional sample of training text.); and summing the weighted model scores to determine the score for each transfer mapping that describe a select node of the input semantic structure (see

BROWN, column 32, equation 7, the weighted probabilities are summed to create a smoothed model).

25. Regarding claim 16, MENEZES further teaches that providing a set of transfer mappings comprises providing a set of transfer mappings arranged as a tree structure and multiple levels of nested subtrees (see FIG. 5B) comprising a root transfer mapping and subtrees, each subtree comprising a root transfer mapping, wherein each transfer mapping in the set of transfer mappings appears as a root transfer mapping in at least one of the tree and subtrees (see FIG. 5B and FIG. 8).

26. Regarding claim 23, MENEZES teaches a machine translation system for translating an input in a first language into an output in a second language, the system comprising:

a parser for parsing the input into an input semantic representation (see FIG. 2A, block 204);

a search component configured to find a set of transfer mappings, wherein each transfer mapping includes an input semantic side that corresponds with a portion of the input semantic representation ("when a plurality of transfer mappings in a transfer mapping database match the input logical form", paragraph [0007]);

a decoding component configured to score each of the set of transfer mappings that corresponds with a select portion of the input semantic representation ("input logical form is generated based on the textual input", paragraph [0007]) and to select which of

the transfer mappings that correspond with the select portion of the input semantic representation has a best fit ("one or more of those plurality of matching transfer mappings is selected based on a predetermined metric", paragraph [0007]); and

a generation component configured to generate the output based on the selected transfer mapping ("the transfer mappings in the subset are combined into a transfer logical form from which the output text is generated", paragraph [0121]).

MENEZES does not specifically teach:

calculating a score for each of the set of transfer mappings; and

selecting which of the transfer mappings that describe the select node has a highest score.

In the same field of language translation systems, BROWN teaches calculating a score for each of the set of transfer mappings (figure 7, scores are given to each transitional structure, column 10 lines 28-40); and

selecting which of the transfer mappings that describe the select node has a highest score (highest score is selected; column 10 line 37).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the scoring of models as disclosed by BROWN in the system of MENEZES in order to provide a logical method to select which translation model will be used for translating the particular input in question.

27. Regarding claim 24, BROWN teaches that the decoding component scores each transfer mapping by using a plurality of statistical models ("Figure 24, score of

translation model is computed using probabilities of the output given the input [alignment] including lexical models, columns 39 line 8-62).

28. Regarding claim 25, MENEZES and BROWN further teach that the output comprises an output semantic representation ("transfer logical form", MENEZES, paragraph [0121]) and wherein the plurality of statistical models comprises a target model that provides a probability of a sequence of nodes appearing in the output semantic representation (Figure 24, score of translation model is computed using probabilities of the output given the input [alignment] including lexical models, columns 39 line 8-62).

29. Regarding claim 26, MENEZES and BROWN further teach that the plurality of statistical models comprises a channel model that provides a probability of a set of semantic nodes in an input side of a transfer mapping given a set of semantic nodes in an output side of the transfer (BROWN computing the probability of a source structure given the output structure; column 39 lines 14-17).

30. Regarding claim 27, MENEZES and BROWN further teach that the plurality of statistical models comprises a fertility model that provides a probability of a node deletion in the transfer mapping (BROWN, probability of alignment is computed in part by a fertility sub-model, column 39 lines 30-56).

31. Regarding claim 28, MENEZES and BROWN further teach that the decoding component scores each transfer mapping using a size score based on a number of nodes in an input side of the transfer mapping (see MENEZES, p. 9, Table 1, "size of transfer mapping matched").

32. Regarding claim 29, MENEZES and BROWN further teach that the decoding component scores each transfer mapping using a rank score based on a number of matching binary features between the input and an input side of the transfer mapping (see MENEZES, p. 9, Table 1, "frequency with which the transfer mapping was generated from fully aligned logical forms").

33. Regarding claim 39, MENEZES further teaches that providing the set of transfer mappings comprises providing root transfer mappings that describe the select node and root transfer mappings that describe any child nodes of the select node (see FIG. 5B).

34. Claims 18-22, 30-38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over MENEZES in view of BROWN as applied to claim 16 above, and further in view of SU et al. (US Patent 5,418,717).

35. Regarding claim 18, MENEZES and BROWN do not teach that calculating a score for each of the transfer mapping comprises calculating a score for a tree of transfer mappings through steps comprises:

recursively calculating a score for each level of nested subtrees, wherein calculating a score for a subtree comprises recursively scoring the subtrees of the subtree, calculating a score for the root transfer mapping of the subtree, and combining the scores for the subtrees of the subtree with the score for the root transfer mapping of the subtree;

calculating a score for the root transfer mapping; and

combining the score for each subtree with the score for the root transfer mapping.

In the same field of language translation, SU teaches calculating a score for each of the transfer mapping comprises calculating a score for a tree of transfer mappings through steps comprises:

recursively calculating a score for each level of nested subtrees, wherein calculating a score for a subtree comprises recursively scoring the subtrees of the subtree, calculating a score for the root transfer mapping of the subtree, and combining the scores for the subtrees of the subtree with the score for the root transfer mapping of the subtree (figure 10, steps 1001-1007 and loop that forms, described column 19 lines 48-62);

calculating a score for the root transfer mapping (step 1004, column 19 lines 48-62); and

combining the score for each subtree with the score for the root transfer mapping (step 1008 column 19 line 67).

Therefore it would have been obvious to use the scoring method as taught by SU with the system of MENEZES and BROWN in order to allow for proper scoring of the tree structures found in MENEZES.

36. Regarding claim 19, MENEZES further teaches that computing a score for a root transfer mapping comprises computing a size score for the root transfer mapping based on a number of nodes in the input semantic side of the root transfer mapping (see p. 9, Table 1, "size of transfer mapping matched").

37. Regarding claim 20, MENEZES further teaches combining the score of subtrees with the score for a root transfer mapping comprises combining size Scores for the subtrees with the size score for the root transfer mapping by averaging the size scores for the subtrees with the size score for the root transfer mapping (see p. 9, Table 1, "size of transfer mapping matched").

38. Regarding claim 21, MENEZES further teaches that computing a score for a root transfer mapping comprises computing a rank score for the root transfer mapping based on a number of matching binary features in the input semantic structure and the input semantic side of the root transfer mapping (see p. 9, Table 1, "frequency with which the transfer mapping was generated from fully aligned logical forms").

39. Regarding claim 22, MENEZES further teaches that combining the score of subtrees with the score for a root transfer mapping comprises combining rank scores for the subtrees with the rank score of the root transfer mapping by averaging the rank scores for the subtrees with the rank score of the root transfer mapping (see p. 9, Table 1, "frequency with which the transfer mapping was generated from fully aligned logical forms").

40. Regarding claim 30, MENEZES teaches a method of determining a score for a word string, the method comprising:

computing an input semantic structure having a plurality of nodes that relate to an input word string ("an input logical form is generated based on the textual input", MENEZES, paragraph [0007]);

obtaining a set of transfer mappings ("transfer mapping database 218",' paragraph [0057]), each of the set of transfer mappings including an input semantic side that describes at least one node of the input semantic structure ("composed of a pair of logical form fragments, including a source and target logical form", paragraph [0008]).

However, MENEZES does not disclose scoring the word string with a target language model that provides a probability of sequences of nodes in the semantic structure to score the word string.

In the same field of translation, BROWN teaches scoring each of the set of transfer mappings that describe the input semantic structure with a target language model that provides a probability of sequences of nodes appearing in an output

semantic structure having a plurality of nodes that relate to an output word string ("language model which assigns a probability or score to an intermediate target structure", BROWN, abstract).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the probability models of BROWN with the translation system of MENEZES in order to better combine information acquired from different sources (BROWN, column 2, lines 35-37).

MENEZES and BROWN do not specifically describe that a score is calculated for a selected node.

In the same field of translation systems, SU teaches that a score is calculated for a selected node (Figure 10, scores for current node retrieved step 1003, column 19 line 56).

Therefore it would have been obvious to use the scoring method as taught by SU with the system of MENEZES and BROWN in order to allow for proper scoring of the tree structures found in MENEZES.

41. Regarding claim 31, MENEZES and BROWN further teach that providing an input semantic structure having a plurality of nodes comprises providing an input semantic structure having a plurality of word nodes and at least one relationship node that describes a semantic relationship between words (see MENEZES, FIG. 3).

42. Regarding claim 32, MENEZES and BROWN further teach that providing word nodes comprises providing word nodes for lemmas ("words in the sentences are converted to normalized word forms [lemmas]", MENEZES, paragraph [0059]).

43. Regarding claim 33, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with the target language model in machine translation ("batch translation system", BROWN, column 9, line 41).

44. Regarding claim 34, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with the target language model in speech recognition ("speech recognition system", BROWN, column 12, lines 53).

45. Regarding claim 35, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with the target language model in optical character recognition ("output of an optical scanner", BROWN, column 12, line 52).

46. Regarding claim 36, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with

the target language model in grammar checking ("construction of syntactic classes or words", BROWN, column 33, line 60).

47. Regarding claim 37, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with the target language model in handwriting recognition ("output of an optical scanner", BROWN, column 12, line 52).

48. Regarding claim 38, MENEZES and BROWN further teach that scoring the input word string with a target language model comprises scoring the input word string with the target language model in information extraction ("combining information acquired from different sources", BROWN column 2, lines 36-37).

49. Regarding claim 40, MENEZES and BROWN further teaches that calculating the score for each of the set of transfer mappings comprises:

determining whether each transfer mapping that describes the select node also describes any child nodes (MENEZES "a pair of child nodes, one from each logical form, having a tentative correspondence with each other, are aligned", paragraph [0093]);

calculating a score for each of the root transfer mappings that describe one of the child nodes of the select node with the statistical model (MENEZES" a parent node of each respective child node is already aligned", paragraph [0093]);

selecting which of the root transfer mappings that describe one of the child nodes of the select node have highest scores (MENEZES "an alignment score assigned to the transfer mapping by the alignment component", p. 9, table 1. BROWN, highest score is selected; column 10 line 37).

MENEZES and BROWN do no teach

combining scores of the highest scoring root transfer mappings that describe each of the child nodes with a score of the root transfer mapping of the select node to find the score for each of the set of transfer mappings that describes the select node.

In the same field of translation, SU teaches combining scores of the highest scoring root transfer mappings that describe each of the child nodes with a score of the root transfer mapping of the select node to find the score for each of the set of transfer mappings that describes the select node (figure 10, step 1008 compete score calculated).

Therefore it would have been obvious to use the scoring method as taught by SU with the system of MENEZES and BROWN in order to allow for proper scoring of the tree structures found in MENEZES.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626